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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,053	09/26/2003	Rainer Bruchhaus	14580-031001	1239
20985	7590	06/22/2005	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			KIM, SU C	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/673,053

Applicant(s)

BRUCHHAUS ET AL. 

Examiner

Su C. Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
4a) Of the above claim(s) 11 and 12 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 is/are rejected.
7) ☒ Claim(s) 2-5, 7 and 8 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Remark/Argument

By the response on Feb. 16, 2005, applicant elected invention of Group II, Claims 1-10 without traverse. Claims 11 & 12 are withdrawn from consideration.

Specification

The disclosure is objected to because of the following informalities: on page 4 lines 24, "On the TEOS layer 1 is are elements 3". There is a mistake on the sentence.

Appropriate correction is required.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show "In Fig 3 " on page 6, line 20 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

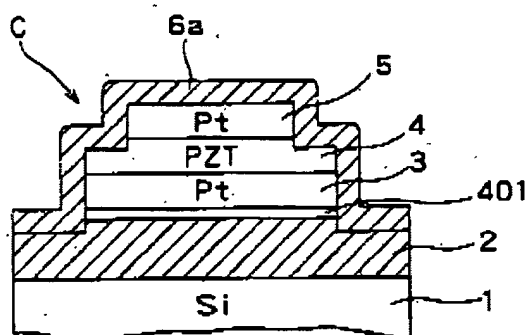


FIG. 18

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Kanaya discloses a method of forming a ferroelectric capacitor comprising forming a crystalline PZT layer as claimed. **See all the FIGS** where Kanaya teaches the following limitations

Claims 1- 6 & 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanaya et al (USPUB 2004/0084701 A1).

1. Pertaining to claim1, Kanaya discloses a method of forming a ferroelectric capacitor comprising forming a crystalline PZT layer by a process including the steps of:

depositing a layer of amorphous ferroelectric material **4** over a layer of a first material **3**;

etching the ferroelectric layer to form isolated ferroelectric elements (**See Fig 1 & 2, column 1 Paragraph [0018] ,please note briefly explain about etching process) ;**

providing a layer of a second material **5 & 6** on at least the side surfaces of the ferroelectric elements; and

performing an annealing step to crystallize the ferroelectric material (**Column 7 Paragraph [0129] Lines 4–7**);

the second material **5 & 6** promoting crystallization of the ferroelectric material to a higher degree than the first material **3**;

whereby the crystallization proceeds horizontally through the ferroelectric elements (

Please note thermal annealing process initiates to form a crystallization on ferroelectric material) .

2. Pertaining to claim 2, Kanaya discloses a method according to claim 1 in which, prior to the annealing step, the ferroelectric elements are directly covered with a layer of a material 5 & 6 which promotes crystallization of the ferroelectric material to a lesser degree than the second material.

3. Pertaining to claim 3, Kanaya discloses a method according to claim 1 in which the second material is TiO₂ (Column 7, Paragraph [0132], **Please note Kanaya teaches insulation layer is “at least one of Al_xO_y, Al_xSi_yO_z, Ti_xO_y, Zr_xO_y, Mg_xO_y and Mg_xTi_yO_z is effective”**)

4. Pertaining to claim 4, Kanaya discloses a method according to claim 3 In which the TiO₂ is formed by depositing Ti on at least the side surfaces of the ferroelectric elements, and oxidizing the Ti to form TiO₂ (column 7, paragraph [0132] & [0133], **please note Kanaya teaches a method to form aluminum Oxide film and on paragraph [0132], Kanaya discloses Ti_xO_y can be used as replacement of aluminum oxide film (TiO₂:x=1, y=2)).**

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5. Pertaining to claim 5, Kanaya discloses a method according to claim 4 in which the Ti is oxidized to TiO₂ by chemical reaction with the ferroelectric material (**Column 7, Paragraph [0129], Please note the purpose of thermal annealing is to crystallize ferroelectric material**).

6. Pertaining to claim 6, Kanaya disclose a method according to claim 1 further including depositing electrode elements of conductive material **5 & 3** between the ferroelectric elements.

7. Pertaining to claim 8, Kanaya discloses a method according to claim 1 in which the ferroelectric material is PZT **4**.

Claim 6 & 10 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kanaya (USPUB 2004/0084701 A1).

8. Pertaining to claim 6, Kanaya disclose a ferroelectric device including a ferroelectric capacitor produced by a method according to claim 1.

9. Pertaining to claim 9, Kanaya discloses a ferroelectric capacitor produced by a method according to claim 1.

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10. Pertaining to claim 10, Kanaya discloses a FeRAM memory device including a ferroelectric capacitor produced by a method according to claim 1

When the reference teaches a product that appears to be the same as, or an obvious variant of, the product set forth in a product-by-process claim although produced by a different process. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP § 2113.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Su C. Kim whose telephone number is (571) 272-5972.

The examiner can normally be reached on Monday - Friday, 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaudhuri Olik can be reached on (571) 272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**W. DAVID COLEMAN
PRIMARY EXAMINER**